

Early Findings Raise Questions About Popular CLA Supplement

A trendy nutritional supplement called CLA, for conjugated linoleic acid, may be more beneficial for animals than it is for people. That's the bottom line of a preliminary, ARS-led study of 17 healthy, nonsmoking women, age 20-41.

CLA is found in beef and some other meats, as well as in dairy products such as milk, cheese, butter, and yogurt.

"In animal studies conducted at other labs," says ARS chemist Darshan S. Kelley at Davis, California, "CLA has shown remarkable health benefits. It has stimulated animals' immune systems, reduced body fat, protected against certain kinds of cancer, and improved cardiovascular health."

But the ARS study on humans, conducted by Kelley and other scientists with the agency's Western Human Nutrition Research Center and from the University of California at Davis, didn't reveal any significant, positive benefits of CLA supplements. More than a dozen scientists collaborated in the investigation, which was initiated by Kelley and former ARS chemist Gary D. Nelson, now retired and a collaborator at the center. Nelson says the experiment was the first detailed human study with CLA.

Volunteers lived at the research center, then located in San Francisco, for the 3-month-long test. The women ate familiar, everyday foods at mealtimes and for their evening snack. Before breakfast, lunch, and dinner, they took capsules containing sunflower oil as a control. For the second and third months, however, 10 volunteers

were instead given CLA capsules, which provided a daily total of 3.9 grams of CLA. That's more than 10 times the amount most Americans consume every day, according to Kelley. The seven other volunteers continued the sunflower-oil capsules. Neither group knew which capsules they got.

Kelley led the portion of the study that explored CLA's effect on the immune system. More than a dozen indicators of immune system activity, checked regularly, showed no significant change. Colleagues Nancy L. Keim and Marta D. Van Loan of the center staff were among those who monitored changes in body composition—that is, the amount of body fat and lean tissue, such as muscle. They found that CLA didn't reduce body fat or help volunteers build muscle.

Keim and Kelley, along with the Davis coinvestigators, looked at changes in leptin—a hormone linked to appetite control. CLA's effect on volunteers' leptin levels was only temporary, and the

effect it had was not what one might hope. Instead of boosting leptin levels to help quell hunger, it decreased them.

What's more, CLA didn't lower blood-fat levels or improve any of the other health indicators the research team examined.

"The amount of CLA we gave to volunteers was comparable to that used in many of the animal studies," Kelley notes. "However, if our volunteers had consumed higher doses, perhaps for a longer period of time, maybe the results would have been different."

Adds Nelson, "Our CLA mixture had 12 major components called isomers. In animal studies, some but not all of those isomers were thought to be bioactive. We used the mixture because purified forms of the possibly bioactive isomers weren't available to us at the time of our study. Administering only purified forms of the potentially bioactive isomers might have changed the outcome of our experiment."

The scientists have published some of their findings in *Lipids*, an international scientific journal.—By **Marcia Wood, ARS.**

This research is part of Human Nutrition, an ARS National Program (#107) described on the World Wide Web at <http://www.nps.ars.usda.gov>.

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